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THE RED-DEER OF EXMOOR.

Those who have ever given the subject a thought must sometimes have wondered what there is peculiar about that corner of the West of England which continues to harbour the wild Red-deer when no other part of England affords it shelter. The fact is that the country around Exmoor has not changed with the times, but has remained what it is for ages, a vast uncultivated hilly moorland, a land of mist and heather, resembling nothing so much as a Scotch deer-forest moved south, and therefore as attractive to deer now as it must have been centuries ago when King John hunted in Somersetshire, and flew his jerfalcons at the cranes on its wild wastes.

The moors of the Exe river are not flat stretches of marshland, but hills of great height, covered with heather. The term mountains may almost be applied to them; numbers of the ridges are twice the height of Beachy Head, or the Dyke at Brighton; Dunkery Beacon is three times as high. But the conformation of the country is such that on entering it the elevations do not seem very unusual, for as it is all high and raised, the eye has nothing with which to contrast it. When on the moor it appears an immense table-land, intersected by deep narrow valleys, called coombes, at the bottom of which a stream always flows. At some distance apart are ranges of hills rising gradually, and with gentle slopes above the general level of the moor. The curves appear so moderate and the ascent so easy,

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that there can be no difficulty in walking or riding over them. But on going towards hills which seem only a mile or two away the table-land sinks in a deep coombe, which has to be descended and reascended, and the sides are high and steep. Presently another coombe intervenes, and after five or six miles' walking very little progress seems to have been made. At last the slope of the hill is reached, and has now expanded into a mountainous ascent, not to be overcome without much labour and more time.

The country is in fact very deceptive, much wider and much more difficult than it looks. The expanse confuses the eye, and will not allow it to judge distances. The illusion is assisted by the smooth outline of the moors without a fence for miles together, and without a visible tree; for the covers are in the coombes, and there are few or no copses on the hills. Nothing breaks up the surface and measures the view. Heather covers the largest part of the ground, which is never ploughed or sown, and where there are no flower-grown meads. One vast breadth of open, wild, and treeless country reaches in every direction, and it is at once obvious why the deer have remained at large since the earliest times, for the land is in the same condition as it was centuries ago. The plough has not touched it, and civilization has not come near.

The questions naturally arise, Why has Exmoor remained in this condition uncultivated for so many centuries? Why does it still defy agriculture and improvement? These questions have been asked and answered in a very pleasantly-written volume* recently published by Mr. Richard Jefferies, the author of 'Wild Life in a Southern County,' 'The Gamekeeper at Home,' and other works, which have been already noticed in the pages of this Journal. According to this author, three impedimentary causes present themselves—the nature of the soil, the cost of labour, and the character of the climate.

The soil, he says, consists of a black friable peat, in some places deep, in others shallow. Under a hot sun it becomes dry, but during the winter, and indeed for the greater part of the year, it is soft and watery. Bogs are numerous, and springy places that are almost bogs. Labour must first be expended in clearing the surface of heather, whortleberries, and rough grass. Lime must then be carried up, and the cost of haulage equals the price of the material. When ploughed and laid down to grass, unless broken up from time to time, the ground will revert and yield nothing but rushes. Acres upon acres may be seen covered with rushes where land has been reclaimed, and has reverted to waste.

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* 'Red Deer,' by Richard Jefferies. Post 8vo, pp. 207, London: Longmans, Green & Co. 1884.

The deer not only lie in the heather, but find abundant shelter in the copses which skirt the coombes. Of late years, owing to the protection afforded them, or rather to the freedom from molestation which they enjoy through the liberal and sportsmanlike feeling of the west country farmers, who like to see them hunted legitimately, but not poached, the deer have notably increased in numbers. A few years ago, if seven or eight were killed in a season it was as much as was expected. Once eleven were killed, and it was thought that such a number would never be reached again; but in the season of 1881-82 no less than a hundred and one deer were killed, the slot of the hundredth being mounted in silver, and preserved at the huntsman's house. He reckons that there are fifty stags in the district, and some two hundred and fifty deer of all sizes. But, besides these, there must be many more outlying in the broad tract of country they now roam over.

They are no longer limited to the moors—they roam over a region of which Exmoor forms only a corner, and which is thus described by Mr. Jefferies :—"With a pencil," he says, "draw a line on the map from Bridgewater to near Ilfracombe, from Ilfracombe down to Exeter, and again from Exeter up to Bridgewater, enclosing a triangle, each side of which on the map would be about fifty miles, but to ride twenty more, on account of the irregular ground. It is not to be supposed that every acre of this region is visited by the deer, but, either while wandering at will, or running before the hounds, it is crossed and recrossed, and marked by their 'slot' or footprints. They have been killed at the very gate of Exeter city, and recently Tiverton has become a pivot of the hunt.

"This country contains a large part of Somerset and Devon, Exmoor and part of Dartmoor, the Dunkery Hills, and the steep Quantocks, besides numerous minor ranges.

"The moors of the Exe, the original home of the Deer, are but a corner. There are vast stretches of fertile land in the valleys and plains, cultivated to the highest degree, innumerable meadows, each with its thick hedges and trees; so that with the copses and covers they resemble woodlands. The triangle above described has within it not only moors and hills, but good farming land, a city, and many large towns. The paths of the deer wind round about the rich and enclosed districts, but if chased they frequently go straight across them.

"So wide a space may more aptly be called a country than a district, and it is strictly correct to say that the Red-deer are now local. They are the Red-deer of the West of England."

The mode of hunting them as pursued in Devon and Somerset has been so well described by Collyns in his 'Chace of the Wild Red Deer,' published in 1862, that we need not dilate here upon it, or follow Mr. Jefferies over this portion of the subject, with which he is evidently less familiar. His description, however, of the habits of deer (either as observed by himself or gathered from the huntsman) is extremely interesting, and developes some characteristic traits which would have escaped an ordinary observer.

Stags, he says, carry their necks perpendicular; hinds hold them aslant. In jumping the walls of the country, made of loose flat stones, the stags leap to the top, which is always broad, and then down the other side; hinds regularly climb them, getting their fore feet on the top of the wall, and digging their hind hoofs into the earth and loose stone, and making a sort of step.

The stag drops his antlers in March; but few of these cast horns are found compared to the number that must be shed, and those that are found are more often single horns than pairs. Certainly the extent of the woods is very great, but they are traversed by gamekeepers and others; the moors are crossed by shepherds; and all keep a sharp look-out for horns, which are valuable.

Mr. Jefferies thinks it possible that the stag may drag brambles or branches over the dropped antlers if they chance to grow at hand, but he makes no allusion to the well-known fact that a great many of shed antlers are devoured by the deer themselves, which have been often disturbed while in the act of gnawing them.

In the West of England, he tells us that a good pair of antlers will fetch £5, and as much as £10 has been given for a pair with a remarkable number of points. These prices show that it is not so easy to find a pair of dropped antlers as might be imagined. Many of the horns sold are odd antlers dropped by different stags; these are fitted together, and generally to a hind's head. The stag's head is generally claimed by the master of the hounds, consequently few genuine heads of the red stag come into the market. The weight of the stag varies: tweve score is a good weight; some are not more than nine, but the huntsman has killed at fourteen score or 280 pounds.

On the subject of the food of Red-deer Mr. Jefferies has much to tell us. They will have the best of everything, he says, and roaming about at night select the meadow with the most succulent grass. They enter orchards, too, in spring, for the long grass that grows between the apple-trees, and again in autumn for the apples, of which they are very fond. Turnips are a favourite food, and leaving the moors they wander miles down into the cultivated fields to find them. The stag, as he walks across the turnip-field, bites a turnip, draws it from the ground, throws it over his shoulders, the jerk detaching the fragment he holds between his teeth, and which is the only portion he touches. He takes but one bite at each turnip, casting the remainder aside in this way, and his course can be traced from one side of the field to the other by the turnips pulled and thrown away after his snatch. In this disdainful manner he damages far more than he actually eats. Hinds eat the turnip down to the ground as a sheep would.

A herd of stags getting into a turnip-field will eat broad patches and paths about it. In a small field they may destroy every root. Potatoes they are very fond of, and get at them by sweeping away the earth with their fore feet. Carrots, too, attract them, and cabbages. They will strip a garden of cabbages in no time as clean as possible. But perhaps the greatest injury is done to wheat. Deer visit the wheat-fields at two seasons. They come as soon as the green leaf shoots up, and nibble it, and are especially fond of it just before the ear appears, when it is full of succulent juice. They return again when the ears are ripe, and lying down in the daytime, when the wheat at its height conceals them, they will eat and destroy many pounds' worth of grain before they are discovered and driven away.

The damage they do to crops is so extensive that without the goodwill of the farmers, stag-hunting could not last a single season. Nothing could demonstrate more thoroughly the enthusiasm which hunting the Red-deer inspires in those who follow it than the fact that the farmers over such an immense breadth of country should unanimously agree to endure these losses. Compensation is of course paid, but even compensation may fail to recoup. Unhesitating goodwill alone can explain the continuance of stag-hunting under such circumstances. Only the noblest sport of all—the chase of the wild Red-deer—could excite a whole country to such generous enthusiasm.

Those who are unacquainted with this part of the West of England would do well to obtain and read Mr. Jefferies' book, from which we have quoted. His vivid description of the appearance and habits of the Red-deer as studied in its last English haunt, with all the natural surroundings which go to charm the eye of an observer, cannot fail to interest even those who do not profess to be naturalists.

THE NIGHTJAR.

By F. Norgate.

The few facts which I have noted in my diary, with some additional notes from memory, and from others who have had greater opportunities for observing this species than I have had, refer only to the counties of Norfolk and Suffolk, from 1859 to 1883. The wild haunts, crepuscular habits, strange noises, and the vulgar errors as to the food of this bird, have made it a great favourite with me.

In Norfolk the eggs are commonly thought to be those of the Cuckoo by the non-ornithological birds'-nesters, many of whom recognise the churring song of the Nightjar as "the noise of the scissor-grinder," without knowing that the two oval stone-like eggs which they see on the bare ground, without the slightest vestige of a nest, are laid by the same bird.

I need hardly allude to its habit of squatting lengthwise along a bough (rather than across the bough), and I am probably unable to describe accurately to those who have not heard it the churring or jarring song, which reminds me somewhat of the croaking of frogs. This churring is usually uttered from a bough, and is continuous for many minutes, occasionally altering in tone suddenly. The call-note is perhaps even more difficult to describe. It is a single note like that produced by twanging a short bit of india-rubber cord when it is tightly strained, or a metallic tongue fixed by one end in a vice. This note is uttered on the wing at intervals of a few seconds, as also the occasional clapping noise, which seems to be made by a single stroke of the wings clapped together.

The Nightjar arrives in Norfolk and Suffolk by the second week in May, or possibly earlier. On the 11th of May, 1882, I heard it on Sparham Heath, in the county of Norfolk. On the 16th of May, 1883, I saw and heard one at Downham, in Suffolk. On the 25th, at the same place, I saw many flying about in the evening, three or four being in sight at once.

The two following dates were given me by two gamekeepers, and I have reason to think they are correct:—Nightjar at Heydon, May 10th, 1876, and at Taverham, May 13th, 1879.

The following dates are for Nightjars' eggs, all found or seen by me in the above-named counties, between 1863 and 1883.

May 25. In Hockering I saw one egg, which had been taken.
„ 30. Two eggs brought from Lyng, and two found yesterday.
June 2. Two fresh eggs in game shop in Brandon (laid some days ago ?).
„ 7. Two, shown to me, but found some days ago.
„ 8. Six, like *all* the above named, possibly laid some days before I saw them; four of these six were sat on.
„ 9. Two; a fresh-laid clutch.
„ 11. Six. Three clutches, nearly fresh, sat on, and much sat on.
„ Between June 11th and 28th, inclusive, I saw fifteen clutches (twenty-nine eggs altogether), in Downham, Herringfleet, Cawston, Lyng, Sparham, Hockering, and Heydon.
July 5. Two, amongst green brakes in the Swannington sheep-walk.
„ 7. One fresh-laid egg in Bluestone Wilderness.
„ 8. Two, nearly hatched, at Drayton Drury.
„ 13. Two, nearly hatched; one was chipped
„ 14. One, at Sparham, on the Heath.
„ 27. Two, *fresh-laid*, at Hockering.
Aug. 4. Two; one was clear and probably rotten, the other much incubated.

I think the last-named was possibly a third clutch and a failure, or, supposing the bird had been robbed of eggs earlier in the season, this was probably a fourth or fifth clutch. I have reason to think, however, that this bird had not been robbed this year. Mr. J. H. Gurney, jun., and Capt. Feilden were with me when we found this clutch, and Mr. Gurney was also with me at the same place, on the 19th of the previous month, when we saw three or four young Nightjars not only flying well, but pretty shy for young birds.

On heaths and in open country away from trees, the Nightjar chooses a small bare spot of earth where there are rounded bleached stones much resembling the eggs in size and colour. The two eggs are often different in size, shape, and colour, and, when hatched, one young bird is sometimes about double the size of the other. This irregularity tends to make both eggs and young less easy to find.

I will now give a table of dates for young and late Nightjars in Norfolk and Suffolk, all observed by me, except where other authority is given.

June 28. Mr. F. D. Wheeler found two, nearly able to fly.
,, 29. Two nearly feathered; old bird sitting on them.
July 2. Two at Drayton Drury.
,, 13. Two strong fliers flew with mother from two eggs.
,, 14. Two downy ones about three days old.
,, 17. Nightjars hatched at Heydon.
,, 19. Two just hatched from eggs found with former brood.
,, 19. Three or four strong fliers, rather shy for young birds.
Aug. 6. Two downy ones. I saw nine or ten Nightjars flying the night before.
,, 7. Two and their mother, and a young one of former brood, all flew up from within a few feet of spot where they were hatched.
,, 14. I saw Nightjars at Drayton, possibly old birds.
Sept. 15. Three dead Nightjars in a shop in Norwich, "brought in on Saturday" previous.
Oct. 14. My brother-in-law, Mr. J. E. Cremer, saw a Nightjar in Sparham.

I feel quite sure that several years ago, when shooting in turnips in Sparham, I saw a Nightjar on the wing, but I can find no note of it in my diary. It was probably in September, possibly later.

On the 5th of August, at Beeston Regis, I shot a female Nightjar which was hawking about on the wing, in company with eight or nine other birds of the same species, and apparently in good health. On skinning it I took from its stomach several large moths, and found, living, in its eyes and brain, twenty-four round greyish white parasitic worms, each about half an inch long, and spirally coiled up. The following day I found one young Nightjar, about the size of a Starling, and without feathers. An old Nightjar fluttered away from it along the ground, apparently carrying something, about the size of the young one, in its mouth. On returning to the spot I found the old bird and two young ones. Two or three days afterwards I looked in vain for them, and suppose the old one had removed them both.

Mr. Baker, the Cambridge taxidermist, in 1875, told me he was once walking with the late Mr. Clough Newcome at Feltwell, when they found a clutch of two Nightjar's eggs. Baker touched one, and wished to take them, but left them till he should return that way. Mr. Newcome said the old one would remove them after the handling. When they returned the eggs were gone.

On the other hand, last year when a Nightjar was hatching and rearing a second clutch, with the assistance (or very close company) of two older young ones, near my house, she was visited and disturbed day after day for weeks, but I could never see that the young were shifted more than a yard or two; possibly they crawled that distance when hungry to meet the mother, for they are much more active with their feet than they appear to be before they are disturbed. After the young were able to fly a few yards they returned to about the same spot where they were hatched. My attention was called to this double brood on the 13th of July, when a gamekeeper stated he had seen two young "Night-hawks" about a fortnight ago, and told me where to find them, which I did the same day. Three Nightjars flew up from the same spot. The two young ones were greyer and lighter in colour than the old bird, which feigned lameness considerably, fluttering along the ground, and often alighting very near me.

On looking at the place whence they arose, I found two Nightjar's eggs much sat on; one was chipped. The next day I saw the old female and two young ones fly up together from the two eggs. The same day, at a few hundred yards distance, I found another female Nightjar sitting on two downy young ones, about three days old. On the 19th I inspected the double brood, and again saw the old one fly off from two very small downy young ones, the eggs being hatched and the egg-shells lying near. I did not see the fledged young of the former brood on the 19th, but the next day one of them flew up with the mother from the newly-hatched young ones.

On the 7th of August I saw the old one and the two last-hatched young ones fly from the spot where they were hatched, or within a yard or two of it, for they had shifted their home a few feet now and then. I also saw a fourth bird—evidently one of the older young ones of the former brood—fly from a spot about three yards from the others.

I never saw more than two Nightjar's eggs in one clutch, but have heard of a brood of three young ones found, about the the year 1868, by an old woodman, who showed me where he found them. He was well acquainted with the bird and its eggs and habits. Another man, in 1877, told me he had once seen three "Night-hawk's" eggs in one clutch.

On the 29th of June, 1876, in Hockering Wood, I saw a female Nightjar sitting on her two young ones, which were nearly feathered. The old bird on my approach remained motionless, except that it closed—or nearly closed—its large eyes, or at any rate that eye which I could see, as if it was aware that its eyes were the most conspicuous part of it.

All the newly-fledged Nightjars seen by me are of a lighter and more uniform brownish grey colour than the old birds, and do not exhibit the white spots which are so visible on the tail and wings of old males.

In woods of oak or mixed timber, the Nightjar usually chooses a small bare spot of ground in the "low fell"—*i. e.* where the brushwood had been cut a year or two ago and the stumps are growing bushy again. In such places there are many "spoll-heaps" and scattered "spolls" on the rough butt-ends which have been chopped off from the felled underwood in making hurdle-stakes, bobbin-wood, and hoop-wood. These "spolls" vary from six inches to about eighteen inches in length, and they are so irregular in shape and colour that it is no easy matter to identify a sitting Nightjar amongst them.

On open treeless heaths the barest soil is chosen, such as where a few turfs have been cut, and one or two short rotten stumps of furze have been left lying among the bleached pebbles. Here the bird resembles the bits of dead furze-wood, and the eggs are very like the pebbles.

I generally find the Nightjar most abundant in such places as the pine woods in the Breck District, especially where a large extent of heath has been overgrown by self-sown Scotch pines scattered in clumps, with plenty of open spaces and single isolated trees. Here I have found three clutches in about two hours; in all the eggs were on bare earth or amongst dead pine-needles and old cones, just under the outer ends of the lowest boughs of large isolated specimens of *Pinus sylvestris*. There was also plenty of pine-bark and bits of dead wood lying about, and matching very well, in colour and shape and size, the sitting Nightjar. I searched in vain where the trees were growing in numbers close together.

Although the evening is usually the active time for the Nightjar, I heard one on the 12th of July, 1874, "jarring" at 4 p.m., and a few days previously I heard one in the early morning before breakfast. Gamekeepers in the Breck District (in both counties) shoot Nightjars because they make a noise at night. I fancy Pheasants are not troubled with nerves so much as the gamekeepers seem to be, and that neither Nightjars nor Nightingales (whose eggs are destroyed for the same reason) are likely to spoil the night's rest of any kind of game.

The foregoing notes show that the Nightjar arrives here in the second week in May or earlier, and lays its two eggs as early as the last week in May, and as late as the first week in July, or later, as some of those mentioned were found unhatched in the first week in August; that its young are hatched pretty early in June, and are nearly able to fly by the 28th of that month; that it occasionally raises more than one brood, one brood apparently assisting in keeping the eggs of a later brood warm; that the late brood fly well by the first week in August; and, lastly, that the Nightjar remains here till the middle of September, and has been seen on the wing as late as the middle of October.

I should be glad to know if the Nightjar usually stays later in the South of England than it does here; if there is any proof of its carrying its young or eggs; and if it ever lays more than two eggs in one clutch.

THE ORNITHOLOGY OF RIDING MILL ON TYNE AND NEIGHBOURHOOD.

By the Rev. Henry H. Slater, F.Z.S.,
Member of the British Ornithologists' Union.

A manual of the Ornithology of any county, in order to be exhaustive, must necessarily be to a considerable extent a compilation. Human life is too short for any one man to pass, in each part of a tract of country so large as an English county, a length of time sufficient to enable him to write a memoir of its Ornithology—from his own observations alone—with that fulness which is demanded of all such publications now-a-days.

It is in the hope of being of some small assistance, in the event of such a work being undertaken by Northumbrian ornithologists, that the present notes are now put together. They are merely a digest of the contents of such of my ornithological note-books as relate to the neighbourhood of Riding Mill; these notes were accumulated during a close and pretty constant observation of the fauna of that neighbourhood from the year 1868 to 1883; and nearly all the items inserted are the results of my own observations alone.

The sequence of the birds has been decided by Dresser's 'List of European Birds' (London, 1881).

Missel Thrush, *Turdus viscivorus*, L., and Song Thrush, *T. musicus*, L.—Resident and common.

Redwing, *T. iliacus*, L.—An abundant winter visitor; its earliest appearances at Riding Mill, as noted by me, are Sept. 21, 1873, and Sept. 18, 1877; its latest stay, April 29, 1877, May 3, 1878. Its note, whilst in this country, consists of a sort of low monosyllabic "cluck," but in its breeding quarters, near the Arctic Circle, it has a fine wild song.

Fieldfare, *T. pilaris*, L.—A winter visitor, but in very irregular numbers, being very scarce some years. My earliest record is Oct. 9, 1878; the latest stay, May 15, 1879; these two being in the same winter, when they were unusually plentiful with us.

Blackbird, *T. merula*, L.—An abundant resident, whose numbers are, however, largely reinforced at the times of the autumn and spring migrations. Like the other members of the Thrush family, the Blackbird is very subject to internal parasites;

several species of *Tænia*, besides *Filariæ*, of large size, and in surprising numbers, are found in the intestines of this bird. In addition, both the Blackbird and Fieldfare are frequently found to have a *Filaria* under the tendon of Achilles. I have never seen the occurrence of parasites in this part of the frame mentioned by other observers, but in some years the Blackbird seems to be as often saddled with this uninvited guest as not.

Ring Ouzel, *T. torquatus*, L.—Rarely seen near Riding Mill, but is occasionally found on the higher ground—*e.g.*, near Healey, and towards Blanchland; in the former place it occurs sparsely, but will probably be found to breed near the latter.

Dipper, *Cinclus aquaticus*, Bechst.—Resident and common up all the smaller streams, but not so often seen on the Tyne. Were it not that the statement still "periodically" finds its way into print, and that much ignorance on the subject yet prevails amongst persons of the gamekeeper class, it would hardly be worth while to mention that the instances of this bird being found to have been feeding on the ova of fish are so few as to form the rare exception.

Wheatear, *Saxicola œnanthe*, L.—A summer visitor, and one of the first to make its appearance, my earliest record being March 21, 1876. Rare near Riding Mill; a pair or two two breed near Healey, and it becomes commoner the higher the altitude, and the opener and stonier the ground.

Whinchat, *Pratincola rubetra*, L.—A summer visitor; not uncommon, but local. Seems to be more abundant near Dipton House than anywhere else, where a few pairs may often be met with during the summer.

Stonechat, *P. rubicola*, L.—A resident, but in small numbers. A fine old male in my collection was shot at Healey, Dec. 21, 1877.

Redstart, *Ruticilla phœnicurus*, L.—A summer visitor, but not abundant. Earliest record, April 23, 1878.

Redbreast, *Erithacus rubecula*, L.—An abundant resident.

Whitethroat, *Sylvia rufa*, Bodd.—One of the most abundant summer visitors. Earliest record, April 27, 1876.

Lesser Whitethroat, *S. curruca*, L.—An uncommon summer migrant. I have only thrice seen the nest near Riding Mill. Earliest record, April 27, 1872.

Blackcap, *S. atricapilla*, L.—A summer visitor, more abundant near Riding Mill than anywhere else I know. I found, without looking for them, four nests of this bird within about three-quarters of a mile of country, in 1883. Earliest recorded appearance, April 18, 1871.

Garden Warbler, *S. salicaria*, L.—A summer visitor, but much less abundant than the last, of which half-a-dozen examples may be met with to everyone of this. Earliest record, April 27, 1870.

Golden-crest, *Regulus cristatus*, Koch.—A resident, breeding not uncommonly. Its numbers are greatly increased during the winter, when fir-woods sometimes appear almost alive with these birds.

Chiffchaff, *Phylloscopus collybita*, Vieill.—A summer visitor, but in small numbers, and very local in its distribution. A pair or two are invariably seen in two small woods up the burn, belonging to Mr. Henry Straker, where they may be counted upon with certainty at the proper season; elsewhere they are sedom noticed.

Willow Wren, *P. trochilus*, L.—The most abundant summer visitant. Earliest records, April 8, 1877; April 12, 1869, 1872, and 1874. In song, usually, about a week after its arrival, but this depends partly on the state of the weather.

Wood Wren, *P. sibilatrix*, Bechst.—A summer visitor, nowhere commoner than near Riding Mill, where it occurs in every wood (except those consisting of Scotch fir) where the trees are pretty tall, though it prefers those with little undergrowth. I found four nests in one morning late in May, 1883, in one wood, by watching the birds go to the nests. Earliest record, April 3, 1876, but this is unusually early, and the bird is very seldom seen before the middle of that month.

Sedge Warbler, *Acrocephalus schœnobænus*, L.—A summer migrant, common enough by the Tyne, but not often seen elsewhere. Earliest records, April 24, 1871 and 1877.

Grasshopper Warbler, *Locustella nævia*, Bodd.—A summer visitor, local in distribution. On Broomley Fell it is very common amongst young fir-growth planted amongst heather; here it is by no means uncommon to hear four or five singing at the same time.

Hedgesparrow, *Accentor modularis*, L.—Resident and common.

Long-tailed Titmouse, *Acredula rosea*, Blyth.—A common resident. As it is a sociable bird in general, so it appears to be in the breeding season also. I have noticed that if you find a nest in a hedge, you may expect to find another or two not far off. There can be little doubt of the propriety of separating this bird from the white-headed continental form; the latter, as well as in the bright yellow eyelids and white head, differs also somewhat in note and habits. The mere fact of the similarity of the immature individuals ought not to have much weight; the young of the Rook and Carrion Crow are not separable, yet who doubts that the species are distinct?

Great Titmouse, *Parus major*, L.; Coal Tit, *P. britannicus*, S. & D.; Marsh Tit, *P. palustris*, L.; Blue Tit, *P. cæruleus*, L.—Common and resident.

Nuthatch, *Sitta cæsia*, Wolff.—I cannot mention this bird as having occurred near Riding Mill, but there is an adult specimen in my possession, which was shot near Wolsingham in the year 1873, and which was skinned and given to me by the Messrs. Tinkler, birdstuffers, of Stanhope.

Tree Creeper, *Certhia familiaris*, L.; Wren, *Troglodytes parvulus*, Koch.—Common and resident.

White Wagtail, *Motacilla alba*, L.—On the 19th April, 1878, I saw a fine male of this uncommon species, in full nuptial dress, in a small field near Riding Mill. It was extremely tame, and I watched it for some time with the greatest interest, being occasionally within ten yards of it. I looked for it subsequently, but in vain.

Pied Wagtail, *M. lugubris*, Tem.—A common summer visitor. I have never known it pass the winter at Riding Mill, though it occurs sometimes as late as mid-October.

Grey Wagtail, *M. melanope*, Pall.—Common in summer by stream-sides, breeding in some abundance by the burn. I have never seen it in the winter.

Yellow Wagtail, *M. raii*, Bp.—A summer migrant, much rarer than the last; indeed I have only three records of its appearance, April 18, 1875, June 15, 1876, and March 14, 1878. The bird seen in the second instance, a young male, is in my possession.

Meadow Pipit, *Anthus pratensis*, L.—A common summer resident, leaving the neighbourhood (for the seaside, in all probability) late in autumn, and returning early in spring. I have taken considerable pains to satisfy myself as to whether this autumnal migration of the Meadow Pipit is partial only or complete, and find it to be the latter. The Titlarks, with us, begin to gather themselves into flocks during the month of September, and after the end of October none are to be seen, search the likeliest places as much as you will. From the middle of February to the middle of April (according to the state of the weather) they re-appear in flocks, which quickly break up and disperse. I have seen a good many individuals about this time in a very dark, dingy state of plumage, like that of the London Sparrows, as if they had been staying in a smoky neighbourhood, which may easily have been the case. I have noticed the same peculiarity about the Sky Larks in spring, who leave us during the winter in much the same way, but who do not leave the neighbourhood so completely.

Tree Pipit, *A. trivialis*, L.—A common summer visitor. Earliest record, April 12, 1868; usually seen about the third week in that month, leaving about the end of July.

Spotted Flycatcher, *Muscicapa grisola*, L.—A common summer migrant, appearing generally about the first week in May. Earliest record, April 28, 1878.

Pied Flycatcher, *M. atricapilla*, L.—An uncommon summer visitor. I never came across it near Riding Mill until 1874, after which I have seen it every year until 1878. On May 8, 1874, I saw three pairs the same day by the Devil's Water. I found, but did not take, the nest with three eggs, by the Devil's Water, near Swallowship, in May, 1876. This bird should be looked for by burn-sides early in May, where it resorts especially to branches of trees which overhang the water. Late in May, 1883, I saw a male in full breeding dress near Smithyburn, close to Stockfield. I watched it for some time with my glass, and saw it thrice peer into a hole in a dead oak-branch. Getting the assistance of the woodman, and fetching a long ladder, with considerable labour, from Bromley, I ascended the tree, sawed off the branch with great care, and lowered it with a rope, the bird showing himself at intervals, apparently in a state of great agitation. I then descended to investigate. There was no nest whatever, and I was obliged to come to the conclusion that the bird had deliberately, seeing my object, "taken a rise" out of me. At least I can think of no other explanation for the interest he took in that hole. I may mention that the Pied Flycatcher used to breed regularly in the farmyard at Broadwood, near Lanchester; the place selected was a pillar of masonry, which with others had formerly supported a conical roof covering a threshing-machine crank, worked by horse-power. The roof was gone, and the pillars stood, each capped by a flagstone, under which the nest was placed. I find by my notes that the bird nested there in 1866, 1867, and 1868, and always in the same pillar. I have eggs from there.

Swallow, *Hirundo rustica*, L.; Martin, *Chelidon urbica*, L.; Sand Martin, *Cotile riparia*, L.—Common summer visitors, the first and last the commonest.

Goldfinch, *Carduelis elegans*, L.—I have not met with this bird in Northumberland nor in Durham, but in 1866 I took a nest with four eggs near Cronkley Scar, in Upper Teesdale: this was within a quarter of a mile of the county of Durham.

Siskin, *Chrysomitris spinus*, L.—A rare occasional winter visitor, never seen in large numbers, but usually in twos and threes. Very irregular in its appearance.

Greenfinch, *Ligurinus chloris*, L.—A common resident.

Hawfinch, *Coccothraustus vulgaris*, Pall.—One day, late in the summer of 1871, as I was sitting by a hedgeside whilst out shooting rabbits, a female Hawfinch flew on to the hedge close to where I was, and remained there for some little time without seeing me. This is the only instance I know of its appearance here.

Sparrow, *Passer domesticus*, L.—A common resident.

Tree Sparrow, *P. montanus*, L.—A rare occasional visitor. One specimen in my possession was shot during the autumn of 1877 at Riding Mill. I took the nest some years ago at Durham; it was in a hole in a tree not far from the Prebend's Bridge.

Chaffinch, *Fringilla cœlebs*, L.—A common resident.

Brambling, *F. montifringilla*, L.—A rare and irregular winter visitor.

Linnet, *Linota cannabina*, L.—A common resident.

Mealy Redpoll, *L. linaria*, L.—A rare and irregular winter visitor, usually in small numbers, consorting usually with the following. One shot by me at Healey in November, 1878.

Lesser Redpoll, *L. rufescens*, Vieill.—A resident, pretty common. Large flocks occasionally seen during the winter (when this bird is much more plentiful, owing to immigration from the more northerly parts of the kingdom); these flocks number several hundreds.

Bullfinch, *Pyrrhula europæa*, Vieill.—A shy but common resident. I rarely go out near Riding Mill without seeing or hearing this bird, and could make sure of shooting a couple of specimens any day I might wish to do so.

Crossbill, *Loxia curvirostra*, L.—A winter visitor, of rare and irregular occurrence. It is possible that odd pairs may remain to breed, especially in the fir woods towards Dilston, where it seems to occur oftenest.

Common Bunting, *Emberiza miliaria*, L.—Common during the summer months, moving towards the sea in autumn, to swell the flocks which are usually seen there during the winter.

Yellowhammer, *E. citrinella*, L.—A common resident.

Reed Bunting, *E. schœniclus*, L. Common during the summer by the Tyne, not often seen elsewhere.

Snow Bunting, *Plectrophanes nivalis*, L.—A winter visitant in small numbers, only seen on higher ground, as at Healey, and then usually on or near stone walls. Towards the moors it occurs more frequently.

Sky Lark, *Alauda arvensis*, L.—Common throughout the summer, the majority leaving (for the sea coast?) late in autumn.

Wood Lark, *A. arborea*, L.—I have observed this bird but once, in 1876, when a pair nested within a hundred yards of my father's house. I had frequent opportunities of watching them and examining the nest, until the young were fledged, when they left. I was in hopes that they might return the next year, but I never saw them again.

Starling, *Sturnus vulgaris*, L.—Common. An admirable mimic, imitating the notes of the Swallow, Swift, Sparrow, Chaffinch, Magpie, Curlew, Redshank, and other birds, including the domestic fowls. I have even heard them echo the whistle with which my father's poultry are called to be fed.

Jay, *Garrulus glandarius*, L.—I cannot agree with Mr. Hancock's remarks ('Birds of Northumberland and Durham,' 1874, p. 41) on the impending extinction of this species. It is seldom you go out shooting in the woods near Riding Mill without meeting with this bird; near Healey it is commoner still. I was once trying to stalk what I imagined to be a Carrion Crow, until I found that the note (an exact imitation of that of the Carrion Crow) proceeded from the throat of a Jay, which I watched for some time. The bird contorted its neck oddly while uttering this note, as if its production required a considerable effort.

Magpie, *Pica rustica*, Scop.—A resident, somewhat more abundant than the last, and I think on the increase here.

Jackdaw, *Corvus monedula*, L.—A resident, breeding in old buildings, in rocks by burn-sides, in clay cliffs (such as Thornbrough Scar), and in the bases of such Rooks' nests as consist of the accumulated materials of several years.

Carrion Crow, *C. corone*, L.—A resident, and pretty common: its numbers have perceptibly decreased since 1868.

Hooded Crow, *C. cornix*, L.—A rare and accidental visitor, only seen about the seasons of the migrations.

Rook, *C. frugilegus*, L.—A common resident. There are rookeries near Bywell, Styford, and Healey Halls.

Raven, *C. corax*, L.—A rare accidental visitor at migration times. I saw one near Sealey in the autumn of 1873; another crossed the Tyne Valley near Riding Mill on Oct. 23, 1878. On both occasions my attention was called to the bird by its note.

Swift, *Cypselus apus*, L.—A common summer visitor.

Nightjar, *Caprimulgus europæus*, L.—A summer visitor, not uncommon. Breeds in some numbers on and near Broomley Fell, where it is usually to be seen on a summer evening.

Greater Spotted Woodpecker, *Picus major*, L.—I possess an adult male, shot near Corbridge in 1872, the only instance of its occurrence that has come under my notice. It nested near Ripon in 1881.

Green Woodpecker, *Gecinus viridis*, L.—Occasionally seen in the older woods. Is far from uncommon near Healey and Minster Acres, where I have noted it on a good many occasions. There was a nest near Healey in 1878 in a dying Scotch fir. It used, moreover, to breed regularly at Woodlands, where I have several times found the nest.

Wryneck, *Jynx torquilla*, L.—I never noticed this bird here till 1883. About the middle of May, in that year, I heard one day the scream of a Wryneck (with which I am familiar) in a damp wood of alder and birch in a gill a little S.W. of Dipton House. I approached the bird and watched it for some time, then and subsequently, but failed to find the nest, of the existence of which I had little doubt. When Mr. Hancock (*l. c.*, p. 24) speaks of Northumberland being the bird's "northern limit," is he not speaking of its distribution in Britain alone? It has nevertheless occurred more than once in the Orkneys, and I have seen half-a-dozen examples in a day in Central Norway, about 62° North.

Kingfisher, *Alcedo hispida*, L.—A resident, usually, however, leaving the neighbourhood in very severe weather. Some years it is more abundant than others; seldom seen except by the Tyne. My notes mention four nests in 1877, in little more than a mile and a half of the river.

Cuckoo, *Cuculus canorus*, L.—A common summer visitor.

Barn Owl, *Strix flammea*, L.—A resident, pretty common.

Long-eared Owl, *Asio otus*, L.—A resident, but not abundant. Breeds sparingly in the less-disturbed woods.

Short-eared Owl, *A. accipitrinus*, Pall.—A winter visitor, which I have only once met with here.

Tawny Owl, *Syrnium aluco*,. L.—A resident, and probably as common as the three foregoing species together, and a very favourite bird of mine. I know of several nesting-places of this bird near here. On one occasion I found a large ejected pellet (the means by which the Tawny Owl avoids the discomforts of indigestion), which I had the curiosity to investigate. I found therein the remains of no less than twenty-four field mice,—there being twenty-four of the right half of the lower jaw,—of two shrews, and two beaks of small birds. I may here remark that St. John states that Owls (he referring especially to the present species) never eat Shrew-mice. Of the incorrectness of this I have had proofs, of the nature of that mentioned above, on several occasions. He observes, on the next page, that Shrew-mice are in the habit of barking trees! In the first-place, their little jagged teeth are utterly unfitted for any such task; in the second, the muscular strength of their jaws renders the feat impossible; in the third, what on earth should lead them to do anything of the kind, seeing they are strictly insectivorous in diet, and that they hybernate during the time of scarcity of food? I merely mention this last case to show that it is not improbable that St. John might be in error as to Owls eating Shrews.

Hen Harrier, *Circus cyaneus*, L.—William James, my late gamekeeper, had a stuffed example of this bird, an adult female, shot by himself on the Bog Hall estate, near Minster Acres, about the year 1873.

Sparrowhawk, *Accipiter nisus*, L.—A resident, not uncommon, and breeding in all the larger and more unfrequented woods. It is a great ornithological treat to watch this bird dash at full speed through a thick wood, avoiding the branches by the merest shave. The female appears much more abundant here than the male.

Merlin, *Falco æsalon*, Tunst.—Being almost exclusively a moorland bird, is seldom seen very near Riding Mill. In the autumn of 1877 I saw a fine old blue male one day at Branch End, near Sealey. I have several times seen Merlins whilst driving between Riding Mill and Stanhope; and up North Tyne, above Bellingham, they are plentiful enough.

Kestrel, *F. tinnunculus*, L.—A resident, slightly commoner than the Sparrowhawk.

Heron, *Ardea cinerea*, L.—A resident, and not uncommon, which does not appear to have decreased in numbers since 1868.

Little Bittern, *Ardetta minuta*, L.—I am not able to record this bird from Riding Mill, but I possess an immature example which was shot on the Wear, between Stanhope and Frosterley, in or about the year 1869, and brought in the flesh to Messrs. Tinkler, the Stanhope birdstuffers, who afterwards kindly gave it to me.

Pink-footed Goose, *Anser brachyrhynchus*, Baill.—I have several times seen geese pass over which were most likely of this species. On the evening of the 8th December, 1878,—being, of course, a Sunday,—I heard a flock of wild geese on the Tyne above Riding Mill. I carefully abstained from going to look at them, hoping to get a shot the next day, but they left at daybreak, and were seen at that time at Corbridge. These were also, most likely, Pink-footed Geese.

Common Wild Duck, *Anas boschas*, L.—Occasionally seen on the river. During very severe frosts odd examples are met with on the burns.

Shoveller, *Spatula clypeata*, L.—A pair rose from the Tyne, on March 1, 1877, when I went down to fish for Salmon, and, for some reason, flew straight towards me, and passed close over my head.

Teal, *Querquedula crecca*, L.—Occasionally on the Tyne in spring and autumn.

Wigeon, *Mareca penelope*, L.—An occasional visitor, during the winter months, in small parties.

Tufted Duck, *Fuligula cristata*, Leach.—I observed a male of this species on the Tyne on Feb. 12, 1875. It is possible that it may have been a Scaup, as it was nearly a hundred yards distant from where I stood watching it, but I do not think it was.

Golden Eye, *Clangula glaucion*, L.—I have several times seen females or immature examples of this salt-water duck on the Tyne; once I noted an old male.

Goosander, *Mergus merganser*, L.—Several times seen alive on the Tyne, generally young examples or females. On Dec. 21, 1878, a fine old male, in the flesh, passed through my hands, which had been shot on the Tyne at Smithy Burn, near Stocksfield.

Red-breasted Merganser, *M. serrator*, L.—I only once satisfactorily identified this bird near Riding Mill.

Ring Dove, *Columba palumbus*, L.—Common; to some extent migratory during the winter months. On Oct. 1, 1876, when I was ascending a crab-tree, with a view to gathering the fruit for culinary purposes, I was surprised to see a Ring Dove fly off from a nest in the tree, and to find that she was sitting on an egg.

[Stock Dove, *C. œnas*, L.—The occurrence of this species in the neighbourhood has been several times reported to me, but I have never been able to confirm it, though I have shot a good number of Pigeons in the woods. I heard, too, that it had nested in the Scar at Thornbrough, but, though I have seen many Ring Doves fly from holes in that Scar, where they regularly nest, I never saw a Stock Dove.]

Pheasant, *Phasianus colchicus*, L.—By the introduction of the oriental race of the Pheasant the breed of English Pheasants has been completely modified, both in appearance and habits, and the bird should be called "*P. torquato-colchicus*." On the higher grounds near Riding Mill wild-bred birds still occur, which have little or no trace of the white collar, and are of a darker colour than most English Pheasants, approximating nearly to the true *colchicus*; I once shot a male of the Bohemian variety on the estate of Henry Straker, Esq., and another on the Healey Estate with a white head.

Partridge, *Perdix cinerea*, Lath.—A common resident, yet, like most birds, to some extent migratory. I have known, on the Healey Estate, a large covey vanish in the beginning of the shooting season, in such a complete manner as to raise suspicions of its having met with foul play; about the end of January the covey returned to the same spot in undiminished numbers (it had been frequently looked for meanwhile in vain), and in a few days the members separated and paired off.

Quail, *Coturnix communis*, Bonnat.—A casual summer visitor. Curiously enough, it only seems to occur on the high ground near Broomley, where I have several times heard it. A keeper of the late George Fenwick, Esq., informed me that he generally noticed some Quail there every year, and that he had once taken the nest. His account may be relied on, as he certainly knew the bird, and showed me a specimen he had shot and stuffed himself.

Grouse, *Lagopus scoticus*, Lath.—Rare near Riding Mill; a few pairs only breed on Broomley Fell (on the Healey Estate), or did as late as 1878, when I ceased to have the shooting there. Towards Blanchland, of course, Grouse are much more numerous.

Black Grouse, *Tetrao tetrix*, L.—Used to be much more common near Healey than the last, and might be plentiful there if there were more suitable ground, and if the grey-hens would choose the places for their nests with more judgment; but, from their choosing spots particularly exposed to the action of the water, their chicks, which are very delicate in constitution, probably suffer more from a wet hatching season than those of any other species. I never killed more than five brace in a day, and I should say that they have decreased there of late years, owing to the growing up of young trees in all the open spaces, by which alone the young birds were preserved in wet summers.

Water Rail, *Rallus aquaticus*, L.—Most probably more common than it appears to be, owing to its retiring nature. A male in my possession, shot near Healey Church, on Nov. 20, 1878.

Corn Crake, *Crex pratensis*, Bechst.—A common summer visitor, and apparently not decreasing in numbers, as would seem to be the case in some places. I was very much surprised, on June 3, 1876, by finding that a Corn Crake, which I had stealthily approached while uttering its peculiar note, was perched on the top of a high hedge; there was no doubt whatever on this point, as I got quite close to it.

Waterhen, *Gallinula chloropus*, L.—Not uncommon by the Tyne; occasional by burnsides. A few pairs breed every year at the mill-dam at Riding Mill.

Pratincole, *Glareola pratincola*, L.—I may here mention that a specimen of this bird was killed near Stanhope on July 14, 1876. For this piece of information I am indebted to the Brothers Tinkler, the Stanhope birdstuffers.

Golden Plover, *Charadrius pluvialis*, L.—I have never noticed or heard of this bird on the higher ground, but flocks often pass a few days in the grass-fields near the river on their way to and from the fells at migration times. On March 24, 1879, I watched for some time a flock of about fifty near Broomhaugh, some of which ran within twenty yards of where I was concealed. Early as it was, about half of them had the full black breast of summer, whilst the rest showed no sign of change whatever; I could not perceive that one was in a transition state of plumage.

Grey Plover, *Squatarola helvetica*, L.—An accidental visitor. On Oct. 27, 1877, five Grey Plovers crossed Broomley Fell, where I was shooting; they passed close enough to where I was for me to see distinctly the colour of the axillaries.

Lapwing, *Vanellus vulgaris*, Bechst.—A common summer visitor, appearing as early as Feb. 12 (1878), and breeding in all suitable places.

Woodcock, *Scolopax rusticula*, L.—A resident, breeding not uncommonly in all suitable woods near Riding Mill, but their numbers are largely reinforced at the time of the autumn migration. I have known of a nest or two every year since 1869. I cannot think that the Woodcocks leave the neighbourhood as soon as the young are able to fly, according to the opinion of Mr. St. John; and the following records, which I collected with a view to satisfy myself on this point, are my grounds for the belief:—1876, Aug. 20, one seen at Riding Mill by myself. 1877, Aug. 9, one seen at Healey by William James, my keeper; Sept. 8, one by myself at Riding Mill; Sept. 20, one at Broomley by keeper of Mr. George Fenwick; Oct. 23, one, and one next day, at Healey by myself. 1878, May 20, one near Healey, with three young ones, by my keeper; June 19, five, four of them young ones, near Dipton House, by Mr. Straker's coachman; July 21, two, at Healey, by myself; Aug. 29, one, near Riding Mill, by myself. 1883, July 5, three at dusk, Riding Mill, by myself.

I have had a good many opportunities of watching the old birds carry their young to the feeding-grounds; this is effected by pressing the young to the breast with the feet, but the young bird must be partly between the legs also, as it is so far "aft." I have also seen Woodcocks "tilting" in the air, after the manner described by Charles St. John, but later in the year than he speaks of it as occurring, *i.e.* about the middle of May.

Snipe, *Gallinago cœlestis*, Frenzel.—Not uncommon during the winter months in suitable localities. Breeds sparingly near Healey.

Jack Snipe, *G. gallinula*, L.—A winter visitor in irregular numbers. My earliest record is Oct. 9, 1878.

Dunlin, *Tringa alpina*, L.—Single birds are occasionally seen in spring by the Tyne, doubtless on their way to breeding-grounds up the country.

Redshank, *Totanus calidris*, L.—Occasional examples seen by the Tyne at migration times.

Curlew, *Numenius arquata*, L.—A summer visitor, only seen on Broomley Fell, where one or two pairs breed, or used to, every year, whence I have examples both of the birds and eggs. In 1877 it had arrived as early as March 27.

Arctic Tern, *Sterna macrura*, Naum.; Common Tern, *S. fluviatilis*, Naum.—Rare casual visitors occasionally seen on the Tyne.

Black-headed Gull, *Larus ridibundus*, L.—A migrant, passing up the Tyne Valley in some numbers every year from the end of April to the middle of May.

Common Gull, *Larus canus*, L.; Lesser Black-backed Gull, *L. fuscus*, L.—Seen occasionally in stormy weather.

Manx Shearwater, *Puffinus anglorum*, Temm.—It may not be out of place to mention that an exhausted specimen of this bird was found and picked up on Crawley Side, near Stanhope, on Sept. 9, 1876.

Little Auk, *Mergulus alle*, L.—I obtained a specimen at Holy Island on Jan. 1, 1879; it was shot in the deep water between the Island and the Beacon.

Red-necked Grebe, *Podiceps griseigena*, Bodd.—I shot a pair near the Inner Farne in the first week of December, 1876, an adult female (with a neck still partially red), and a young male. There were half-a-dozen others.

Lesser Grebe, *P. fluviatilis*, Tunst.—A rare occasional visitor, only seen on the Tyne. A pair, one of which I saw in the flesh, were shot by a loafer at Smithy Burn on Jan. 14, 1878. It is odd that this bird has not been observed more frequently, since Mr. Hancock, in his Catalogue of Northumberland birds, includes it as a resident.

AMERICAN ORNITHOLOGISTS' UNION.

BIRD MIGRATION.

At the first congress of the American Ornithologists' Union, held in New York City, September 26th to 28th, 1883, a Committee was appointed to investigate in all its bearings, and to the fullest extent possible, the subject of the migration of birds in the United States and British North America. The work will not be limited to the accumulation of records of the times of arrival and departure of the different species, but will embrace the collection of all data that may aid in determining the causes which influence the progress of migration from season to season. For example, severe storms, gales of wind, protracted periods of unusually high or low temperature (for the locality and time of year) are among the atmospheric conditions that are known to exert marked effects upon the movements of birds. The opening of the leaves and the flowering of certain plants, with the correlative appearance of a multitude of insects, are also among the actors that have to do with the abundance of many species. Hence the careful registration of certain meteorological phenomena, and of the state of advancing vegetation from day to day, will constitute prominent items in the record-books of the observer.

For the purpose of rendering the result of the season's work as full and valuable as possible, the Committee earnestly solicits the co-operation of every ornithologist, field-collector, sportsman, and observer of nature in North America.

For convenience in collecting and arranging the enormous mass of material which will be accumulated by the joint labours of this army of field workers, it has been deemed advisable to divide the vast expanse of territory embraced in the United

States and British North America into thirteen Districts (which are specified in a circular issued by the Committee from which we quote), each of which will be placed under the immediate direction of a competent Superintendent.

The home of each observer is called a Station, and is recorded by number upon the books of the Committee. The Committee particularly requests that all persons who are willing to aid in the work will *immediately* communicate with the Superintendents of their respective Districts. Those residing in Districts whose Superintendents have not as yet been named may address the Chairman.

It is the duty of each Superintendent to exert himself to the utmost to increase the number of observers in his District; to answer the questions they may put to him concerning the details of the work, &c.; to collect at frequent intervals the product of their labours; to ascertain from these data the whereabouts of certain species in winter, and the times of leaving their winter homes; to determine if possible the number and extent of the chief avenues of migration within the limits of his District, and the average rate of speed at which the different species travel; to locate the *breeding areas* of the summer residents; and, finally, to submit the result of the season's work to the Chairman of the Committee. The Chairman shall, in turn, arrange, condense, and systematise the material received from the Superintendents of the several Districts, and shall present to the Union the fruits of the joint labours of all the collaborators, together with any comments, deductions, or generalisations he may have made upon the same.

The data collected may conveniently be arranged in three general classes: *a.* Ornithological Phenomena. *b.* Meteorological Phenomena. *c.* Contemporary and Correlative Phenomena.

(*a*) *Ornithological Phenomena.*

Each observer is requested to prepare, at his earliest convenience, a complete list of the birds known to occur in the vicinity of his Station, and to indicate (by the abbreviations enclosed in parentheses) to which of the following five categories each species pertains:—

1. *Permanent Residents*, or those that are found regularly throughout the entire year (R).

2. *Winter Visitants*, or those that occur only during the winter season, passing north in the spring (WV).

3. *Transient Visitants*, or those that occur only during the migrations, in spring and fall (TV).

4. *Summer Residents*, or those that are known to breed, but which depart southward before winter (SR).

5. *Accidental Visitants*, or stragglers from remote districts (AV).

It is desirable also to indicate the relative abundance of the different species, the terms to be employed for this purpose being: *Abundant, Common, Tolerably Common, Rare.*

In many species the males arrive in advance of the females; hence it is important to note the sex of the first comers, and the date at which the opposite sex is first seen.

In recording arrivals and departures it is highly important to distinguish between the movements of the great bulk of the species and those of the forerunners or advance guard. For this purpose two dates should be recorded for the incoming, and two for the outgoing of every non-resident species, as follows—

1. The first appearance of the species (F).
2. The arrival of the bulk (BA).
3. The departure of the bulk (BD).
4. The last individual seen (L).

In addition to the above, which may be regarded as *essential data*, there are many other noteworthy details which bear more or less directly upon the complicated problems involved in the study of migration. Among such may be mentioned the bodily condition of the bird (whether fat or lean), the moult, and the periods of song. The time of mating, when observed, shoul always be recorded.

(*b*) *Meteorological Phenomena.*

Extended meteorological data are not required, though the observer would derive material assistance from a systematic weather record. The Committee desires information upon—

1. The direction and force of the wind.
2. The direction, character, and duration of storms.
3. The general conditions of the atmosphere, including rainfall.
4. The succession of marked warm and cold waves, including a record of all sudden changes of temperature.

(*c*) *Contemporary and Correlative Phenomena.*

The Committee desires that the data under this head be as full and complete as possible, and requests exact information upon:—

1. The date at which the first toad was seen.
2. The date at which the first frog is heard.
3. The date at which the first tree-toad or "peeper" is heard.
4. The dates at which certain mammals and reptiles enter upon and emerge from the state of hybernation.
5. The dates at which various insects are first seen.
6. The dates of the flowering of various plants.
7. The dates of the leafing and falling of the leaves of various trees and shrubs.
8. The dates of the breaking up and disappearance of the ice in rivers and lakes in spring, and of the freezing over of the same in the fall.

The Chairman of Committee on Migration is Dr. C. Hart Merriam, of Locust Grove, Lewis County, New York.

NOTES AND QUERIES.

Method of recording Observations.—With regard to Mr. Harvie Brown's communication on a more uniform method of recording observations (p. 60), I think that the use of the suggested form would lead to useful and valuable results which might not be obtained in any other way. There can be no doubt as to the value of such a system. At the same time I think that its exclusive adoption would probably cripple original observations; and I thoroughly appreciate your remarks as to such formality detracting from the pleasure derivable from more original communications. I therefore hope that original observations may be kept up as at present, and that the suggested form, or possibly a slightly more elaborated one, may be brought into use. Would it not answer the purpose fully for the filled-up forms, or a synopsis of them, to be published in 'The Zoologist' annually? I am inclined to think that a full and detailed synopsis of the forms, complete for a year, would be more convenient and useful than a number of untabulated forms in each number of the Journal.—J. E Palmer (Lyons Mills, Strafford, Co. Kildare).

Supplement to the Vertebrate Fauna of Yorkshire.—Messrs. W. Eagle Clarke and W. Denison Roebuck, Leeds, are preparing a Supplement to their 'Handbook of the Vertebrate Fauna of Yorkshire,' and would be glad to have notes of additions or corrections to that work, or notices of the occurrence of any species of quadrupeds, birds, reptiles, or fishes in Yorkshire, which their friends may be pleased to communicate. As they wish to publish in the April magazines, it is hoped that the desired information may be sent them immediately.

MAMMALIA.

The Burmese Elephant at the Zoological Gardens.—The question that appears most to interest the public mind in the matter of this Elephant is that of whether his peculiarity be a disease or not a disease. Now in styling it leucoderma, which is a known and definite disease, I differ point-blank from Prof. Flower, who says (p. 63), "it does not result from any disease of the skin, but is doubtless an individual congenital condition or defect." He then goes on to say that if it extended over the whole of the integument, including the eye, it would constitute true "albinism," so that he commits himself to regarding the condition as "congenital" partial albinism, which I aver it is not. Prof. Flower concludes by expressing some surprise at the perfect bilateral symmetry noticeable in this instance, which he says is very rarely present in the local deficiencies of pigment found either in domestic animals or dark-skinned men. Now as to that last assumption he is partly right and partly wrong. Leucoderma is so extremely rare a disease, either in man or in animals, that it is possible Paof. Flower has never seen a case of it. For the twenty years that I have been surgeon to the British Hospital for Diseases of the Skin, during which time very many thousands of cases of skin disease of all kinds have passed under my hands, I have met with but very few cases of leucoderma. I might almost say I could count them on my fingers. In the dark races of mankind it is supposed to be commoner than in Europeans, but this supposition may well arise from the fact that in a black man the disease constitutes a much more striking phenomenon than in a white man, and that in the black races of man, who go about more or less completely unclothed, the condition is much more exposed to general observation. Now it is of the essence of leucoderma that it is not congenital. The individual affected with leucoderma is not born so. It is a condition he acquires during his lifetime, sometimes at an early, sometimes at quite an advanced age; and then, again, it does not commence all at once as a large patch, but, beginning in one or more small spots of decoloration, gradually extends, until by degrees, spreading more in some directions than in others, it at length forms large patches of irregular shape, which, however, always have one notable peculiarity—namely, that more or less perfect "bilateral symmetry" which seems to have rather surprised Prof. Flower in this instance. Now from enquiry of Mr. White, in whose charge the Elephant is, I learn that the Elephant is fifteen years old; that the white patch was at one time no bigger than my fist; that the patch began to spread from small dimensions to its present gigantic size when the animal was about five years old; that Mr. White has been told that the animal exhibited a very little patch indeed when he was as young as one year old; and that Mr. White should imagine that the animal must have been born with the patch, but that he had never been told so. Now, this history, for so far as it may help, tallies with leucoderma, but is quite opposed to congenital albinism. Then, as to the question of bilateral symmetry, I have before me a photograph of a well-marked example of the piebald negro—that is to say, of a negro affected with leucoderma. The negro is most extensively and grotesquely piebald, but the bilateral symmetry exhibited by his piebaldness is most exact. Now, it may be asked, do I deny the possibility of such a thing as a partial congenital albinism? By no means. Such a thing is quite well known, and I have repeatedly met with it. There are many people now living in this country who have been born with a white lock of hair, the rest of their hair being of a natural colour. But here comes the point. Such patches always remain stationary; they do not increase progressively in size, and, moreover, they fail to present bilateral symmetry; they are perched oddly on one side only of the individual, and there is no corresponding patch on the other side. Then why do I call the Elephant's patch a disease? Does it not come to the same thing, in effect, in the one case as in the other—namely, to a sheer local deficiency of the epidermic pigment? Well, scarcely so. In the first place, the fact of leucoderma commencing during the lifetime of the individual constitutes it a disease as against local albinism, which, being congenital, is a malformation or deformity of the skin; but this is by no means the only difference between the two. The one is not bilaterally symmetrical; the other is so. The one has no tendency to spread; the other has a tendency constantly to spread by slow degrees as long as it lasts. And then comes a very important difference. Congenital local albinism is a thing which it is impossible to cure, whereas leucoderma is open to the possibility of being cured—in fact, it sometimes cures itself. I have known three instances in which it has undergone spontaneous recovery within an average period of six years. When I was taken to see the White Elephant I naturally expected to see an albino—that is to say, an animal entirely white or faint pink (as. Prof. Flower properly puts it), and with pink eyes. Such a thing is not unknown among the Pachydermata. It occurs in Pigs, for example. In some animals true albinism is notoriously common—in the Rabbit, for example. In the Elephant it is obviously extremely rare; but so also is leucoderma. There is one point I would touch on before I conclude. A popular impression has gained ground that this animal may have the leprosy, and it may be asked, Has leucoderma anything to do with the leprosy? Most certainly not. For example, leprosy undermines the health most miserably, and always eventually kills the individual affected with it; whereas leucoderma exerts no influence whatever either on the health of the oubject of it or on the duration of his life.—Balmanno Squire.—[From 'The Times,' in reply to Prof. Flower's letter, printed in 'The Zoologist' for February, pp. 62, 63.]

Stoats acquiring the Ermine Dress in Mild Seasons.—A Stoat, in full ermine dress, was killed at Broughton on the 19th January last. The whole of the upper parts were of an unusually pure white, with the exception of a very slight tinge of yellow (less than is shown in many made-up furs) at the base of the tail, and a narrow light brown mark on the near fore leg. Mr. Wyatt tells me that he received another a few days before, but this had a dark patch on the crown of the head, the part which is, I believe, least often white, the tip of the tail of course excepted. Is it not contrary to the generally accepted opinion for Stoats to change during such mild seasons as the present? I observed the same thing in the mild winter of 1881–2. They do not all change, for the day I handled the white one—four days after it was captured—I saw a specimen in the flesh which did not show a sign of white on the upper parts.—Oliver V. Aplin (Great Bourton, near Banbury).

[We should be glad to have some expression of opinion, founded on observation, as to whether the assumption of the ermine dress in the Stoat is the result of a gradual change of colour in the hair, or an actual growth of new hair. Has any correspondent ever kept a Stoat in confinement and observed the changes of colour in summer and winter? What is the origin of the provincial name "lobster" applied to this animal in some of the eastern counties of England? Can it have any connection with the change of coat analogous to the change of shell which takes place annually in Crabs and Lobsters, and which is well known to the east coast fishermen?—Ed.]

Note on the Harvest Mouse.—I may make a few slight additions to Mr. Rope's interesting account of the Harvest Mouse. In confinement these mice are very fond of canary-seed, as much so, according to my observation, as of wheat. They also much appreciate a small bone of cooked mutton, especially a bone from a mutton chop after it has left the table; the fragments of meat attached to the bone are very attractive to the Harvest Mice, and a constant supply of such bones seems to diminish their propensity to cannibalism, to which they are much addicted where several are confined in the same cage, and I think especially during the spring months. I once saw the commencement of the act of cannibalism, at a time when several instances had occurred amongst the Harvest Mice which I was then keeping. The cannibal, a large specimen, was busy nibbling one ear of a smaller mouse, which was crouching in a quiescent state, as though in some manner mesmerised; but when I interrupted the operation and removed the patient from the cage to some rough grass it speedily recovered its activity and made its escape. These mice, after being kept for some months in confinement, may not unfrequently be seen nibbling off the tops of their own tails, just as is sometimes done by tame monkeys. I may add that in the spring I give my Harvest Mice twigs of hazel, the leaf-buds and partly-expanded leaves of which they devour with great avidity. Also that a bunch of fresh moss, with the earth adhering to the roots, seems to be a great treat to them; they eagerly burrow into it, probably in search of small insects and similar dainties.—J. H. GURNEY (Northrepps Hall, Norwich).

BIRDS.

Rough-legged Buzzard in Shetland.—Some weeks ago I received from my native island of Unst a fine specimen of the Rough-legged Buzzard, *Buteo lagopus*, shot at Haroldswick. This bird, although frequently occurring elsewhere in the British Isles, has not before been observed in Shetland, so far as I am aware. It is not included in Dr. Saxby's list, and its appearance in Unst is therefore possibly worthy of being recorded as an addition to the number of occasional feathered visitors. I am indebted for this handsome bird to Mr. Thomas Thomson, of Baltasound, who carefully preserved the skin and sent it to me. He mentions that it was a female, and apparently adult, both observations being borne out by the measurements and plumage.—T. EDMONDSTON (Jan. 24).

Waxwing in Shetland.—A specimen of the Waxwing was shot in January last at Norwick, Unst, and submitted to Mr. J. T. Garrick, who writes, "This bird has been met with in Shetland only at very rare intervals. Dr. Saxby has mentioned its occurrence in Unst in 1861, and again on the mainland in 1866. In the spring of 1851 several were seen on the mainland by Mr. Dunn." Unfortunately the specimen now referred to had been kept unskinned so long that it was found impossible to preserve it.

Food of the Stone Curlew.—In my note on the food of the Stone Curlew (p. 68) I see I must have made a clerical error, writing *Helix variabilis* for *Helix vermiculata*. Both are equally common here, but the substance of the shell of *H. vermiculata* is considerably thicker than that of *H. variabilis*, and is also larger.—E. F. BECHER.

Wildfowl in North Oxfordshire.—A Dunlin, *Tringa alpina*, was shot in the Cherwell Valley, at Gouldern, on November 9th; it was seen in company with two others wading in a partly flooded meadow, and allowed my informant to walk up within shot. Wildfowl have not been plentiful this winter. Of Mallard and Duck we have had comparatively few, and there has been no great flight of birds bred at a distance. I saw the first Teal on October 6th. On the 21st of that month I counted eight Pochards on Clattercutt Reservoir, and have since seen as many as a score together. A Tufted Duck has been joined by three others. Wigeon appear to have been very scarce, the first I heard of was on November 19th. On the 12th January I watched for some time three Goldeneyes, *Clangula glaucion*, on the reservoir. One was a beautiful male, almost, if not quite, adult; the others were in brown plumage, and apparently females, from their smaller size. Some of the common Wild Ducks were paired by that date, as one might almost expect, considering the extremely mild season. A male Siskin, which I have since obtained, was taken by a Goldfinch catcher at Broughton about November 10th; this may have been one of the Northamptonshire birds (Zool. 1883, p. 502) which had passed further south-west.—OLIVER V. APLIN (Great Bourton, near Banbury).

Grey Shrike near Carlisle.—A female Shrike was shot on the 16th January last, in the immediate neighbourhood of Carlisle, which appears to be intermediate between *Lanius major* and *L. excubitor*. The bases of the secondaries are slightly tinged on the inner edge with greyish white, but the outer edges are black. It was much discoloured by smoke, having haunted the neighbourhood of the Caledonian Railway for at least a week. When observed by me, on January 12th, it was perched almost motionless on the inside of a tall hedgerow, towards the top. It looked very grey and dark, until it saw me, when it flew swiftly across the corner of the field, showing well the first white bands across the black wings. The Great Grey Shrike has often occurred in Cumberland,—an old male was shot at Kirklinton last December,—but I have not yet examined a local thoroughbred Pallas' Grey Shrike. The above-mentioned female Shrike weighed two ounces and half-a-drachm.—H. A. MACPHERSON (Carlisle).

Variety of the Yellowhammer.—Last March a curious variety of the Yellowhammer, with bright rufous marks, about one-fourth of an inch long, on either side of the chin, and a tinge of the same colour over the eye, was netted at Coldham Common, near Cambridge, and is at present in the possession of Mr. Daggett, taxidermist. The rest of the plumage is of the normal type of a cock bird.—J. H. GURNEY, JUN.

Little Gull at Rainham, Kent.—A Little Gull was shot on the Medway near here on the 17th September last. It was prettily mottled on the back with black and white, all the under plumage being a pure white. The bird is still with Mr. Charles Gordon, of the Dover Museum, where I sent it to be stuffed. On the 7th February, 1870, I shot an immature Little Gull when flying over a ploughed field beside the river; the wind at the time was blowing strong from the east. On the 14th a Little Gull, an adult in winter plumage, was brought me, which was shot at the entrance to Milton Creek. Later in the season, about the latter end of March, the same year, I observed another Little Gull, with a black head, flying amongst a flock of sheep, having separated itself from a flight of the common species flying up our creek.—WALTER PRENTIS (Rainham).

Snow Bunting in Somersetshire.—Since sending you a notice last month of a Snow Bunting being picked up at Lodway, I hear from Mr. John Marshall, of Taunton, of one having been shot in fine plumage on November 5th, 1883, near Huntspill.—ROGER FORD (Wraxall Court, Nailsea, Somerset).

Occurrence of the Common Sandpiper in Winter.—In last month's issue (p. 73) I note the occurrence of the Common Sandpiper, *Totanus hypoleucus*, Linn., in winter, mentioned by Mr. W. E. Beckwith. I shot one on January 15th last on the rocks by the sea below the village of Glandore. The bird was in good condition, and in no way (so far as I could see) suffering from any injury.—C. DONOVAN, JUN. (Myross Wood, Leap, Co. Cork).

[The bird, which has been obligingly forwarded by our correspondent, is unquestionably the Common Sandpiper (*T. hypoleucus*).—ED.]

Greenland Falcon in Co. Donegal.—In the January issue of 'The Zoologist' (p. 31), Mr. A. G. More stated that I had received a specimen of the Greenland Falcon from Mr. Steward, of Horn Head. On the 1st January I obtained another from the same locality. This specimen is an adult female, in splendid plumage. I have since heard that a third was seen in the same place.—H. BECHER (Beechwood, Dalkey, Co. Dublin).

Long-tailed Duck in Cumberland.—The most unusual visitor to Cumberland that I have come across is a fine drake of *Harelda glacialis*, which I found harbouring on Monkhill Lough, about three miles from the estuary of the Eden, on January 24th and several subsequent days.—H. A. MACPHERSON (Carlisle).

Erratum.—In the paragraph on the "Curious Variety of the Guillemot" (p. 71), the word "average", in line **11**, should be "avoirdupois."

FISHES.

Turbot coloured on both surfaces.—I have heard, on good authority, of the capture in Penzance Bay of a Turbot coloured on both sides, and having the Turbot "knobs" on each side. The people who got it unfortunately sent it to market instead of forwarding it to me, and so I lost the opportunity of seeing it. The occurrence of the "knobs" on the under side of a self-coloured Turbot is so unusual, if not altogether unique, that the mere report of it seems worth recording.—THOMAS CORNISH (Penzance).

Spawning of Fish.—Last week I was fortunate to get hold of two of the *Gadidæ*, heavy with roe. The first was *Gadus pollarhius*, or the Whiting Pollack of Couch, of about 12 lbs. weight, the roe of which was 15 oz. On weighing a half grain, and counting them and computing the number, I found it contained 4,200,000 eggs. My next fish was the *Gadus virens*, or the Coalfish of Couch, and 21 lbs. weight, the roe being 33 oz. Here I again weighed and counted a half grain, and on working out the result I found it to contain 8,260,000 ova. There was not the least difficulty at getting at these results. After allowing the eggs to remain in boiling water a few minutes they readily separated, and a magnifying glass and needle soon told the story. From these figures I think we may reasonably expect that Whiting Pollacks of 20 lbs. weight may be expected to give about 7,000,000 eggs, and Coalfish of 30 lbs. weight full 12,000,000 of eggs.—Matthias Dunn (Mevagissey, Cornwall, Jan. 22).

Greater Pipe-fish in Mount's Bay.—I received, on February 16th, a very good specimen of the Greater Pipe-fish, or Greater Sea-adder (*Syngnathus acus*) taken in Mount's Bay. It was a female heavy with roe, but not in a fit state for preservation. I do not regard the fish as a rare one in our British seas, but only as one the occurrence of which usually escapes observation.—T. Cornish (Penzance).

CRUSTACEA.

Floating Crabs at Penzance.—I have recovered from a derelict water-logged barrel of paraffin, which drifted ashore near Newlyn West, four specimens of the "Floating Crab," *Planes Linnæana*. They were found in the seaweed which had attached itself to the barrel and much mixed up with barnacles. They were all alive when I received them, and one of them had lost its right claw and portions of its two foremost right legs. The loss of the claw was evidently recent, but the loss of the legs was not so; their broken joints were blackened and shrunk. On the stump of the foremost of these legs there was established parasitically a barnacle, of course of very small size. The crab itself did not measure an inch across the carapace. It is a curious coincidence that in January, 1882, I made a similar recovery of very many specimens of this crab from a derelict paraffin cask picked up off Mount's Bay. Two of the four specimens of my present take were males and two females, and the colours of the whole were various. I hope to preserve them all, but their actual physical strength is such that (as I observed in January, 1882) they require perfectly unusual treatment in pinning down. I do not think I am overstepping the fact when I say that a lobster of 8 lbs. weight, or a common crab of 6 lbs., would succumb more readily to the pinning-down process than these little, but very active and powerful, creatures, any one of which could easily be placed within the limits of one square inch.—T. Cornish (Penzance).

ANNELIDES.

Phosphorescence of Syllis.—During the month of December, 1883, immense quantities of Corallines were thrown up on the beach at Langstone Point, near Dawlish, and also near Exmouth. There were literally cart-loads of them, as remarked by Mr. C. W. Parker, of Warren Cottage, Starcross, who showed me a mass he had brought up from the beach into his study, and which displayed beautiful phosphorescent particles in the dark. The greater part of the mass consisted of *Sertularia abieteria*, much finer and larger than I ever before saw it on this coast; but several other species of Corallines were mixed up with it. On examination the luminous spots were found to be individuals of a small species of *Syllis*, living in transparent membranaceous tubes closely adherent to the *Sertularia* by their whole length, but some of the worms had left their habitations and were wandering about the Corallines. When the mass was shaken up flashes of light were seen in all directions, and it then resembled a handful of moss filled with glow-worms. The brilliant blue light was quite under the control of the animals whilst alive, and was only shown when they were disturbed or touched. The light played up and down the whole length of the body, and if a worm was crushed on the fingers the luminous particles adhered to them like phosphorus. Some of the worms lived for many days after being brought into the house, Fresh water did not extinguish their light, but diluted spirits did so very quickly. — W. S. M. D'URBAN (Albert Memorial Museum, Exeter).

ARCHÆOLOGY.

"The Sea-blue Bird of March."—This passage in Tennyson's 'In Memoriam,' &c., has long puzzled commentators, though all were agreed that it referred to the Kingfisher. In 'The Academy' for February 16th, p. 114, Professor Whitley Stokes has traced the phrase to a fragment of Alcman, the Spartan lyric poet, who flourished about the year 650 B.C., where he calls the halcyon ἁλιπόρφυρος εἴαρος ορνὶς, *the sea-purple bird of Spring*. The preservation of these lines of Alcman, by Antigonus of Carystus, is due to their embodying one of the many myths about the Kingfisher, *viz.* that the males (especially called κηρύλοι, whence Boie's *Ceryle*), when their parents were too old to fly, carried them about upon their wings. The epithet "of Spring" is not quite clear, for the famous "halcyon days," when the sea was fabled to be calm for a fortnight while the Kingfishers built their nests, were always said by the ancients to occur in winter. Aristotle, the chief authority for this legend, expressly says that "birds generally pair in the spring and summer, except the halcyon. This bird," he continues, "hatches its young about the time of the winter solstice." But the poet, though he wrote some three centuries before the philosopher, may have wished to correct the current improbable belief.—HENRY T. WHARTON.

SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

February 7, 1884.—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

Mr. Henry Groves, of Florence, and Mr. F. L. Keays, of Cobham, were elected Fellows.

There was exhibited, on behalf of Mr. Arthur C. Cole, a box containing mounted preparations, illustrative of his 'Studies in Microscopic Science,' a work devoted to Animal and Vegetable Histology, now being issued in parts.

The second part of the Rev. A. E. Eaton's monograph, "On the Recent *Ephemeridæ*, or Mayflies," was read in abstract. In this he takes into account the genera from *Potamanthus* (and end of group *Pentagenia*) to *Callibites* inclusive, the part being accompanied by over twenty plates.

Another paper, read in abstract, was "A Catalogue of European and North Atlantic Crustacea," by the Rev. A. M. Norman. In this an attempt has been made to gather together all the forms known and recorded of the above group. Notices of many of the species are only to be found in obscure periodicals, &c., almost in every language; consequently since the publication of Milne-Edwards' 'Histoire Naturelle des Crustaces,' in 1834, the numbers have increased nearly threefold, revision therefore becoming highly necessary.

Mr. B. T. Lowne contributed an interesting memoir embodying his researches on the compound vision of insects. He compares the structures of the simple ocellus with those of the compound ocellus (common in larval insects), and with those of the compound eye. The compound eye, according to him, is composed of aggregate compound ocelli, or the latter in the larval insects is merely equivalent to a single segment of a compound eye. He refers to the development of the compound eye, and points out that in many larvæ during moulting stages the "segregate" retina is finally replaced by another. He describes a deep spindle-like layer in intimate connection with the nervous structures, and which he regards as playing an important part in the phenomena of compound vision, rather than that this is dependent solely on the number of corneal facets.

February 21, 1884.—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

Mr Alfred Prentice Young, of Bombay, and Mr. D. Sullivan, of Victoria, were elected Fellows of the Society.

Mr. R. Miller Christy brought before the notice of the Society a series of Lepidoptera, Hymenoptera, &c., captured by him in Manitoba, some of the Humble Bees being supposed to be new to science.

A paper was afterwards read by Mr. Christy, "On the power of penetrating the Bodies of Animals possessed by the Seed of *Stipa spartea*."

A communication followed, from Mr. Stewart O. Ridley, "On some Structures liable to Variation in the Subfamily *Astrangiaceæ* (*Madreporaria*)," in which he remarks that although the columella has been taken in many groups of *Madreporaria* for distinguishing genera, yet a study of a series of specimens of *Astrangiaceæ* (*Phyllannia papuensis*) shows that within a single colony we may have the papillar and the trabecular forms, both to all appearance well developed, owing to the union in some cuticles of the trabecular by a continuous lamina. Similarly, in the allied species *P. dispersa*, the costæ, insisted upon in the description of the species of the genus by MM. Milne-Edwards and Haime, may either be present or absent in the same colony. Thus great care must be exercised in the employment of columella and costæ in the specific distinction of the *Astrangiaceæ*.—J. Murie.

Zoological Society of London.

February 5, 1884.—Prof. W. H. Flower, LL.D., F.R.S., President, in the chair.

Mr. F. Day exhibited and made remarks on a specimen of a Dog-fish, of which the entire interior had been eaten out by Isopod Crustaceans of the genus *Conilera*.

Mr. G. F. Butt exhibited two specimens of a singular variety of the Red Grouse, shot in Westmoreland.

A communication was read from Mr. W. Leche, of the University of Stockholm, in which he gave an account of a collection of Bats from Australia. Two new species were described and named respectively *Nyctinomus Petersi* and *N. albidus*.

Mr. Sclater read some notes on the Lesser Koodoo, *Strepsiceros imberbis* of Blyth, with a view of confirming the distinctness of this Antelope from its larger relative *Strepsiceros kudu*.

A communication was read from Mr. R. Bowdler Sharpe, containing the description of a new species of Bush Shrike of the genus *Laniarius*, based on a specimen obtained in Ashantee by Mr. Godfrey Lagden, which he proposed to call *L. Lagdeni*, after its discoverer.

Prof. Flower made some remarks on the chief points of interest exhibited by the Burmese Elephant now in the Society's Gardens.—P. L. Sclater, *Secretary*.

Entomological Society of London.

At the Annual Meeting held January 16th, 1884, J. W. Dunning, Esq., M.A., F.L.S., &c., President, in the chair, an abstract of the Treasurer's accounts for 1883 was read by Mr. J. Jenner Weir, one of the Auditors, and the Report of the Council for 1883 by the Secretary. During the year the Society had elected seventeen new Members and one Subscriber; it had lost four Members by death (Messrs. B. Cooke, W. A. Forbes, P. H. Harper, and E. Sheppard), and three by resignation. To the regret of all entomologists, two names which had long graced the list of Honorary Members had to be erased—Professor P. C. Zeller, who was elected an Honorary Member as long ago as 7th May, 1849, died suddenly at his residence near Stettin on March 27th last, and Dr. John L. Leconte, elected an Honorary Member on April 6th, 1863, died at Philadelphia on November 15th. To fill the vacancies thus created, two names would be submitted at an early meeting. The way in which the proposal was received that Prof. Westwood should be made Honorary President for life formed a fitting celebration of the fiftieth anniversary of the foundation of the Society. The 'Transactions' for the year (exclusive of the 'Proceedings') form a volume of 448 pages, containing twenty-two memoirs contributed by eighteen authors; they are illustrated with twenty-one plates, two of which are coloured. The Library had been increased during the year by the usual serials and a few other purchases, and by many donations from members and others; a special vote of thanks had been accorded to the President for his munificent gift of a complete set of the 'Annals and Magazine of Natural History' as far as published, to vol. xii. of the 5th series; in all ninety-two volumes.

No Members having been proposed other than those recommended by the Council, the following were declared to be the Members of Council for 1884:—T. R. Billups, J. W. Dunning, E. A. Fitch, F. Grut, W. F. Kirby, G. Lewis, R. M'Lachlan, J. W. May, R. Meldola, F. P. Pascoe, E. Saunders, Sir S. S. Saunders, J. W. Slater.

The following officers were declared to be re-elected:—*President*, J. W. Dunning, M.A., F.L.S., &c.; *Treasurer*, E. Saunders, F.L.S.; *Secretaries*, E A. Fitch, F.L.S., and W. F. Kirby; *Librarian*, F. Grut, F.L.S.

The President then delivered an address, at the conclusion of which Mr. H. T. Stainton proposed a cordial vote of thanks to Mr. Dunning for his services as President during the year, and requested that he would allow his address to be printed with the 'Proceedings.' The proposal was seconded by the Rev. H. S. Gorham, and carried unanimously.

Mr. R. M'Lachlan proposed a vote of thanks to the Secretaries, Librarian, and Treasurer, which was seconded by Mr. J. W. Slater, and carried unanimously.

Messrs. Saunders, Fitch, and Grut made some remarks in acknowledgment.—E. A. Fitch, *Hon. Secretary*.

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